TS-2800
Token Ring Switch
Release Notes

Switch Software Version 3.6.1B
ATM UFC Software Version 1.12.3

MANU0214-03 - Rev. A - 4/28/98

Legal Notices

FORE Systems, Inc. makes no representations or warranties with respect to the contents or use of this manual, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. Further, FORE Systems, Inc. reserves the right to revise this publication and to make changes to its content, at any time, without obligation to notify any person or entity of such revisions or changes.

RESTRICTED RIGHTS LEGEND

Use, duplication, or disclosure by the government is subject to restrictions as set forth in sub-paragraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 (October 1988) and FAR 52.227-19 (June 1987).

TRADEMARKS

FORE Systems and *ForeRunner* are registered trademarks of FORE Systems, Inc. *ForeThought*, *ForeView*, *CellPath*, *PowerHub*, and "All Roads Lead to ATM" are trademarks of FORE Systems, Inc. All other brand or product names are trademarks of their respective holders.

TABLE OF CONTENTS

TABLE OF CONTENTS

1.0 General Description of Software Release

This software release for the FORE Systems TS-2800 Token Ring switch allows use of the internal Source-Route Bridge feature with the ATM UFC installed in the switch.

Refer to the manual included with this release for comprehensive information on the internal Source-Route Bridge feature, system requirements, installation, configuration, management, and troubleshooting.

2.0 Improvements

This release incorporates general improvements in a variety of areas, significantly increasing the overall robustness and reliability of the TS-2800. Also, this release fixes a number of previously existing problems in which:

- The Internal Source-Route Bridge feature did not work if the ATM UFC was installed. This problem has been corrected.
- A new IP address was not registered with ILMI until the TS-2800 was rebooted or the ATM UFC was reset.
- The ATM UFC failed and required reset after approximately one minute of 50 calls / second load.
- The TS-2800 did not always automatically detect the correct version of UNI on a port.
- The LEC failed under heavy broadcast traffic.
- The ATM UFC required manual reset if the Tx fiber (Rx side of the ATM switch) was disconnected for a period of two minutes or so.
- The ATM UFC might use the wrong virtual circuit connection in the case of a call collision. In the case of a call collision, the call placed by the LEC with the lower ATM address should be used. However, in earlier versions of the ATM UFC microcode, each octet of the called ATM address was compared with the corresponding octet of the calling ATM address until a pair of octets was found that were not equal. If either of the octets of this pair contained a '1' in the most significant bit, the wrong switched virtual circuit was used in the case of a call collision. The effects of this problem were observable when attempting to call an ATM LEC that did ***not*** contain this defect.

This release improves reliability in maintaining ATM connections across an ATM cloud that contains redundant NNI links. In earlier versions of the ATM UFC microcode, if one of a set of redundant NNI links between ATM switches failed, the TS-2800 did not always correctly reestablish the connection using the redundant link.

3.0 Known Issues or Concerns

3.1 General

- FORE recommends that you load the boot image and Token Ring port microcode with this release, in addition to the switch main image and ATM UFC microcode. See section 3.6 on page 11 of these release notes and chapter 9 of the TS-2800 Token Ring switch *Planning and Configuration Guide*.
- FORE recommends that you reset the TS-2800 after a software upgrade by pressing the **Reset** button on the Token Ring Processor Card.
- The internal Source-Route Bridge must be in the disabled state when the bridge number is changed to ensure the proper functioning of SRB Spanning Tree.
- The internal Source-Route Bridge does not allow bridging between ATM ELANs.
- Do not plug or unplug any UFC (Universal Feature Card) while the TS-2800 is powered on. Inserting or removing the UFC with the TS-2800 switch powered on could result in permanent damage to the UFC. (However, the redundant power supply is hot-swappable and can be removed and inserted while the TS-2800 is powered on.)
- Due to reliability issues under investigation by FORE, use of the TokenPipe feature is discouraged in this release.
- The MAC address filter can be configured for Token Ring ports only. It does not allow filtering on logical ports assigned to LECs on the ATM UFC.
- After making configuration changes in a switch with two ATM LECs attached to the same ELAN, the switch should be reset to ensure network stability.
- The TS-2800 user interface does not allow you to clear the MAC address table or LE_ARP table.
- The maximum size frame that the TS-2800 is designed to support is 4540 bytes. Frames larger than this will be aborted. This might require special setup by your network administrator.
- Console arrow keys are unreliable when using a slow communication device (<9600 baud). In this case, use the **<TAB>** key to select the console options.
- The introduction of transparent switching into a Token Ring environment can reveal latent conditions that are masked when only Source-Route Bridges are used to interconnect rings. The Token Ring frame format includes status information bits that have been used improperly by some network adapters or protocols. The usage of these bits has varied within the Token Ring industry during the past few years.

  The following problems have been attributed to the improper use of these bits:

  - Some Level 2 protocol drivers or applications are known to improperly rely upon the frame status information as verification that the frame has been received by another station.
  - Some stations report or log a soft error each time a frame is received based on an address match and the status information. The condition that is being reported is no longer a true indication of an error condition and should be ignored.

  Refer to "Appendix E" of the *Planning and Configuration Guide* included with your switch for more information.
- If you experience difficulty opening Telnet sessions with the switch, or get error messages concerning terminal types, check the options for your Telnet client. Make sure that the terminal type is set to `vt100`, `vt102`, or `vt220`. If you are running Telnet from a command line, there is usually an option that allows you to choose what terminal type to use.

- When defining a TokenPipe Configuration, ensure that both ports of each interconnected pair making up the TokenPipe have compatible configurations. The suggested configuration is `Auto-Config` for Config Type and `FIX-16` for Speed.
- When a switch port configured in Auto-Detect with Ring Speed Adjust enabled (`RSA16` or `RSA4`) discovers a connection to shared media, it will open and insert into the ring. If the open returns with an indication that the port is the first station to enter the ring, it will close. This is also true for ports configured in Fixed-Adapter mode with RSA enabled. This algorithm dictates that a port that is capable of speed adjustment must have some other station on the ring (typically a server) from which it can sense the speed.

  If you want to have switch ports that are attached to shared media set the ring speed, you must change the default configuration of `Auto-RSA16` to either `Auto-Fix16`, `Auto-Fix4`, or force the configuration to `Adapter` mode with `Fix16` or `Fix4` speed.
- Data directed to one of the TS-2800's own IP addresses cannot cross the internal bridge. In other words, the management station should use the IP address associated with the domain that is on its side of the internal bridge.

3.2 MIB OCTET STRING Display Errors

Under certain conditions, some MIB Browsers may incorrectly display an OCTET STRING as a printable ASCII character string rather than as the sequence of hexadecimal numbers that was intended. For example, the hexadecimal value of `41` may be incorrectly displayed as an `A`.

This can affect the following objects:

- DTRC MIB OCTET STRINGS:
  - dtrConcentratorAddress
  - dtrCRFPortMask
  - dtrCRFMacAddress
  - dtrCRFSpTreeDesignatedRoot
  - dtrCRFPortSpTreeDesignatedPort
  - dtrCRFPortSpTreeDesignatedRoot
  - dtrCRFPortSpTreeDesignatedBridge
  - dtrFdbDynamicAddrStnAddress
  - dtrFdbDynamicRDRouteDesc
  - dtrExSrbStpAddress
  - dtrExSrbStpDesignatedRoot
  - dtrExSrbPortStpDesignatedRoot
  - dtrExSrbPortStpDesignatedBridge
- RFC1213 OCTET STRINGs
  - atPhysAddress
  - ipNetToMediaPhysAddress
- RFC1231 OCTET STRINGs
  - dot5UpStream
  - dot5Functional

- RFC1493 OCTET STRINGs
  - dotldStpPortDesignatedPort
  - dotldBasBridgeAddress
  - dotldTpFdbAddress
  - dotldStpDesignatedRoot
  - dotldStpPortDesignatedRoot
  - dotldStpPortDesignatedBrid
- RFC1573 OCTET STRINGs
  - ifPhysAddress
- RFC1695 OCTET STRINGs
  - atmInterfaceAdminAddress
- LEC MIB OCTET STRINGs
  - lecMacAddress
  - leArpMacAddress
  - lecConfigLesAtmAddress
  - lecPrimaryAtmAddress
  - lecConfigServerAtmAddress
  - lecActualLesAtmAddress
  - lecAtmAddress
  - lecMacAddressAtmBinding
  - lecRouteDescrAtmBinding
  - leArpAtmAddress
  - leRDArpAtmAddress
- DISCOVER MIB OCTET STRINGs
  - announceAddress
  - mapAddress
- TS-2800 PRIVATE MIB OCTET STRINGs
  - tsTrapRcvrDmns
  - tsPortStnAddress
  - tsOptPortStaVal
  - tsDmnPorts
  - tsDmnBaseBridgeAddr
  - tsDmnStationAddress
  - tsDmnStationTraffic
  - tsOptDmnStaVal
  - tsPipePorts
  - tsFilterStationAddress
  - tsFilterPorts
  - tsFilterMask
  - tsUFCType

3.3 2-Port Token Ring UFC Issues

- The 2-Port Fiber Token Ring UFC operates in an RI / RO-compatible attachment mode only. (802.5J is not supported at this time).
- The 2-Port Fiber Token Ring UFC supports connections with other TS-2800 2-Port Fiber UFCs or with the IBM 8230 Token Ring Network Controlled Access Unit (CAU). Connections to other device types may encounter interoperability problems.
- If both the RI and RO of an attached device (such as an 8230) or a series of devices are connected to a single TS-2800, Spanning Tree must be enabled. (Multiple connections to a single ring cannot be supported without the use of Spanning Tree.)

3.4 ATM UFC Issues

- Changing the ring number for a domain may cause a LEC in that domain to unjoin and not rejoin the ring. You must reset the ATM UFC to recover. In many cases, this behavior is an intentional response to network misconfiguration.
- After configuring a LEC on the ATM UFC to join an ELAN that is using Distributed LAN Emulation (DLE) services, FORE recommends resetting the TS-2800. This ensures that the LEC will successfully switch to the redundant DLE services if necessary.
- The TS-2800 does not use the `Multicast Send VCC Avg Rate (C25)` and `Multicast Send VCC Peak Rate (C26)` parameters supplied by the LECS when the supplied values are less than 1000.
- The TS-2800 may incorrectly signal a CBR VC to the BUS as a VBR VC.
- The values for `Multicast Send VCC Avg Rate (C25)` and `Multicast Send VCC Peak Rate (C26)` are labelled as kbps, while the actual units are cps.
- Users installing an ATM UFC in a slot that previously contained a non-ATM UFC should clear NVRAM before installing the ATM UFC.
- In some situations, after a short ATM link failure, LECs may be unable to rejoin their ELANs after the ATM link is restored.
- Under certain circumstances, changing the ELAN name of an already configured ELAN can cause the TS-2800 to automatically reboot due to an invalid memory access error. This occurs only when you are using a Telnet session to access the TS-2800 interface, as opposed to a serial link connection. Also, the error occurs only if you are changing the name of a ELAN that the TS-2800 was unable to connect to when it originally booted up. Changing the ELAN name when the LEC is up, or booting a TS-2800 with the ELAN available and then changing the ELAN name does not produce the error.

  If you encounter this problem, to change the ELAN name without encountering the reboot, FORE recommends that you record all important configuration information on paper, clear the NVRAM, and then reconfigure the ELAN name and other parameters as required.
- Under uncommon conditions, the TS-2800 might display an incorrect operating state for LECs on the LEC Statistics panel.
- The LANE Statistics panel in the LAN Configuration Statistics is not available.
- When dual ATM UFCs with multiple LECs are installed in the TS-2800, in some cases the Spanning Tree Protocol will not select the correct port for forwarding traffic. Resetting the TS-2800 ensures that the correct ports and LECs are selected as forwarding and blocking paths.

- ATM Statistics Problems

  The following are known problems in ATM MIB II and console statistics for this release. These problems will be addressed in a future release.

  - The statistics displayed on the following console panels may be incorrect and should not be considered accurate:
    - ATM Physical Port Statistics - MIB-II Statistics (from RFC 1573)
    - ATM Physical Port Status / Statistics
    - LEC Status / Statistics - MIB-II Statistics
    - LEC Status / Statistics - LAN Emulation Statistics
  - ATM statistics can be accessed through the SNMP MIB objects. They may also be incorrect.
    - RFC1573:

      ifTable - counters for ATM and LEC

      ifXTable - counters for ATM and LEC
    - LECMIB:

      LEC Statistics Table - counters for ATM and LEC

      LEC Status Table - units for C25 and C26

3.5 Interoperability Issues

- The token adapter for the IBM 9221 (ES / 9000) Processor will not open when directly attached to a TS-2800 port. You must use an MSAU such as the IBM 8228 Token Ring Network Multistation Access Unit or the IBM 8230 Token Ring Network Controlled Access Unit.
- You must manually configure the TS-2800 switch port if you connect to other manufacturers' switch ports that are configured for fixed, full-duplex-only operation, and that conform to the Dedicated Token Ring Draft Standard, Version 3. If your installation has such a configuration, refer to Chapter 4, “Configuration,” in the section titled “Configuring Ports,” in the TS-2800 Token Ring Switch *Planning And Installation Guide*.
- The TS-2800 provides an SNMP agent for management from an SNMP manager. The TS-2800 allows LAN Network Manager LLC frames to flow through the switch so that communication to existing 8230s and Source Route Bridges will be maintained. Some error reporting functions and ring map functions might be lost for the rings attached to the switch.
- To ensure a directly connected FDX station always connects at 16 Mbps, you should manually set the station's adapter to a Fixed-16 mode of operation. Otherwise, there is a small possibility that a directly attached station that implements IBM's auto-speed algorithm, when connected to an TS-2800 port that is configured in Auto-Detect mode, will make its connection at 4 Mbps.
- When IEEE 802.1d spanning tree is active, a port within that domain will require several seconds to make the transition from the blocking state to the forwarding state when the port is initially activated (e.g., joins an existing ring or activates a dedicated link). Some client or server applications may attempt to establish session activity during this time, resulting in error messages indicating a connection failure. These applications should be configured to wait at least 30 seconds after the LAN link is active before attempting to establish session activity. This delay can be reduced by modifying the 802.1d spanning tree default parameters.

3.6 Downloading Issues

- For this release of the TS-2800 software, FORE recommends that you reload all microcode images for the switch:
  - Boot (`TRS_B361.BT`)
  - Token Ring switch main image (`TRS_B361.GZ`)
  - Token Ring port microcode (`TRS_B361.SOL`)
  - ATM UFC microcode (`ATM_1123.UFC`)

  These files can be downloaded using either the TFTP download procedure or the serial port (XMODEM) download procedure. These procedures are given in chapter 9 of the TS-2800 Token Ring switch *Planning and Configuration Guide*.
- If using the serial port to download the code via XMODEM, first check that the baud rate of the terminal session and the TS-2800 are both set to 9600. Although this rate is slow, it helps prevent potential problems.
- If you are using OS/2 Warp TCP/IP 3.0 for TFTP download, install the latest CSDs (Corrective Service Diskettes). Invoke the TFTP daemon using the following command:

  `tftp -t 30`
- Users experiencing problems downloading using TFTP should stop traffic flow through the switch during actual download. If the download appears to hang before completing, ensure that TFTP and protocol timeouts are not disabled.
- Do not use AIX Version 3.25 telnet sessions to download the code for the ATM Uplink UFC.
- Users experiencing IP problems with Merlin (OS/2 Release 4) are advised to clear the ARP cache in the Merlin workstation.

4.0 Contacting Technical Support

In the U.S.A., customers can reach FORE Systems' Technical Assistance Center (TAC) using any one of the following methods:

1. Select the "Support" link from FORE's World Wide Web page:

   http://www.fore.com/

2. Send questions, via e-mail, to:

   support@fore.com

3. Telephone questions to "support" at:

   800-671-FORE (3673) or **724-742-6999**

4. FAX questions to "support" at:

   724-742-7900

Technical support for customers outside the United States should be handled through the local distributor or via telephone at the following number:

+1 724-742-6999

No matter which method is used to reach the TAC, customers should be ready to provide the following:

- A support contract ID number
- The serial number of each product in question
- All relevant information describing the problem or question